Economic Analysis of Water Quality Based Effluent Limits for the Grass Range Wastewater Treatment Plant

EPA has requested an economic analysis of water quality based effluent limits for nutrients for the Town of Grass Range wastewater treatment plant (WWTP), based on EPA Guidance and practice, and data availability. Abt Associates conducted a preliminary analysis consistent with EPA's Interim Economic Guidance for Water Quality Standards (U.S. EPA, 1995), and publicly available data. We present a summary of the analysis and our conclusions below. Since we limited our review to the economic analysis, we did not review the appropriateness of the water quality targets and resulting effluent limitations, or other potential bases for a variance.

1 Background

The Town of Grass Range WWTP is a two-cell facultative lagoon system. The facility is operated as a controlled release and, during the period of June 2006 to April 2011, discharged only once, in June 2008. During this discharge event, nutrients in the facility's effluent were reportedly 7.3 milligrams per liter (mg/L) total nitrogen (TN) and 2.07 mg/L total phosphorus (TP) (Montana DEQ, 2011). Future average monthly limits for the facility would be 5.6 mg/L TN and 0.3 mg/L TP. Therefore, the facility could require upgrades to comply with the new limits.

2 Estimating Costs

We developed a preliminary estimate of incremental compliance costs to reach these permit limits using a Water Environment Research Foundation (WERF) report (WERF, 2011) that provides estimates of costs for hypothetical treatment trains providing various levels of nutrient removal. Specifically, Table 4-3 of WERF (2011) provides unit cost data that are based on flow (e.g., dollars per gallon per day capacity) for each of several levels of treatment. The WERF treatment levels are designed to meet the nutrient limits shown in Exhibit 2-1.

Exhibit 2-1: WERF (2011) Treatment Level Objectives

Level	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)
1	No removal	No removal
2	8	1
3	4 to 8	0.1 to 0.3
4	3	0.1
5	<2	<0.02

As a lagoon system, the facility's existing treatment train is not equivalent to any of the WERF levels. Therefore, for this analysis, we assume the existing equipment at the facility would need to be abandoned and replaced by a WERF-equivalent mechanical treatment train. The method used here to calculate incremental compliance costs does not include the costs of closing the

existing lagoons. Therefore, the cost estimates might understate actual compliance costs. On the other hand, it is possible, although not certain, that some of the existing equipment might be reused in the new treatment train (e.g., intake and effluent discharge equipment). To the extent existing equipment could be reused, the cost estimates overestimate actual compliance costs.

The facility's permit statement of basis (Montana DEQ, 2011) reports a design flow average of 0.038 million gallons per day (MGD) and a maximum daily design flow of 0.068 MGD. It reports that the actual flow during the June 2008 discharge event was equivalent to a 30-day average of 0.021 MGD. Long-term average flow data are not available. For this analysis, we use the design flow average of 0.038 MGD to estimate capital costs because the WERF capital estimates are scaled to an annual average design flow.[1] We use the actual average flow of 0.021 MGD to estimate operating costs. This average flow reflects the equivalent 30-day average resulting from a single discharge event. Therefore, it may overestimate the actual long-term average flow. As a result, the estimates here might overestimate actual operating compliance costs.

To meet a future nutrient limit of 5.6 mg/L TN would require treatment corresponding to WERF level 3 or level 4. We assumed that level 4 treatment would be required to guarantee meeting the future nutrient limits, allowing for a safety factor. This level of treatment would also meet a future nutrient limit of 0.3 mg/L TP. For level 4 treatment, WERF (2011) estimates capital costs of $15.3 million per MGD capacity and operations cost of $880 per million gallons treated. Applying these costs to the design and average flow for Grass Range results in a total capital cost of $0.58 million and an operating cost of approximately $6,700 per year (assuming year-round operation). We used the Engineering News Record (ENR) construction cost index (CCI) to escalate capital costs to current dollars by multiplying by 1.08.[2] Because WERF's operating costs are based on energy and chemical costs, we used the consumer price index (CPI) to escalate operating costs to current dollars by multiplying by 1.05.[3] This escalation results in a total incremental capital cost of $0.63 million and an incremental operations cost of approximately $7,100 per year in current year dollars.

The WERF (2011) unit operating costs include energy and chemical costs only, not labor. Although incremental labor requirements can be minimized when automated controls are present, labor costs can be highly dependent on site-specific factors (U.S. EPA, 2008). For conventional activated sludge treatment as a whole, however, estimated labor costs can be as much as two-thirds of total annual operating costs (Young et al., 2012). Therefore, to account for

[1] The WERF estimates also assume a peaking factor of 3. In comparison, based on the reported design average and maximum flows, the existing Grass Range facility appears to be designed for a peaking factor of approximately 1.8. If facility upgrades were designed using this lower peaking factor, the cost estimates here would overestimate actual costs.

[2] The average ENR CCI for 2014 was 9806 and the average ENR CCI for 2011 was 9070, resulting in an escalation factor of 9806 / 9070 = 1.08.

[3] The CPI for 2014 was 236.736 and the average CPI for 2011 was 224.939, resulting in an escalation factor of 236.736 / 224.939 = 1.05.

potential incremental labor, we multiplied the incremental operating cost by three to $21,300 per year. Note that this incremental operating cost assumes year-round operation. Actual incremental operating costs would be lower if the nutrient criteria do not apply year-round and if elements of the upgraded treatment system could be shut down, bypassed, or placed on standby during the period when the criteria do not apply.

We annualized incremental capital costs over 20 years using an interest rate for revenue bonds of 2.5%, which is the current rate for the Montana Water Pollution Control State Revolving Fund (Montana DEQ, 2015). We added the incremental operating costs, including labor, to arrive at a total annualized cost estimate of $61,713 per year.

For purposes of sensitivity and uncertainty analysis, we also examined the impact of alternative assumptions used in Montana DEQ's previous economic analysis (Blend and Suplee, 2011). Montana DEQ's previous analysis examined various scenarios that included two different interest rates: 5% and 7%. The previous analysis also used a different method to estimate labor costs. Instead of applying a multiplier to annual operating costs, it estimated labor costs as a percentage of annualized capital costs. The scenarios examined used two different labor percentages: 15% and 48%.[4]

Based on the range of scenarios examined in Montana DEQ's previous analysis, we calculated results using two sets of alternative assumptions. Alternative 1 combines the lower interest rate of 5% with the lower labor estimate of 15% of annualized capital cost. Alternative 2 uses the higher interest rate of 7% and the higher labor estimate of 48% of annualized capital cost. Exhibit 2-2 compares our cost estimates with results using these alternative assumptions.

Exhibit 2-2: Comparison of Standard and Alternative Cost Estimates

Scenario	Interest Rate	Labor	Total Annualized Cost ($/year)
Standard	2.5%	2/3 of total operating cost	$61,713
Alternative 1	5%	15% of annualized capital cost	$65,253
Alternative 2	7%	48% of annualized capital cost	$95,068

3 Municipal Preliminary Screener

To demonstrate that the costs of pollution control would result in substantial and widespread economic and social impacts justifying a variance, the discharger must first demonstrate that it would face substantial financial impacts through a two-part test, including a municipal preliminary screener (MPS) and Secondary Test.

The first step in determining whether impacts will be substantial involves combining the

[4] Montana DEQ's previous analysis also examined different assumptions about the percent of flow treated by reverse osmosis. Because meeting future nutrient limits at this facility would not require reverse osmosis, those assumptions have no effect on the analysis here.

estimated compliance costs with existing pollution control costs, and comparing the result (on a per-household cost basis) to median household income (MHI) to obtain an MPS value. Exhibit 3-1 shows the assumptions and data sources for the MPS calculation.

For this analysis, we assumed that households currently pay for 100% of existing costs, and that they would also pay 100% of project costs. Information on commercial and industrial contributors is not available. The Grass Range Clerk/Treasurer (Mullins, 2015) indicates that there are 79 households served, and that each pays a flat rate of $12 per month for sewer services.

Based on the assumptions and data shown in Exhibit 3-1, we calculate that the project could result in an MPS of 3.7%.[5] Using the alternative interest rates, labor costs, and annual project costs shown in Exhibit 2-2 (and all other assumptions the same as Exhibit 3-1), the MPS would be 3.9% (Alternative 1) or 5.4% (Alternative 2). Based on EPA's 1995 Guidance, this indicates that the project may result in substantial economic impacts, and a Secondary Test is appropriate.

Exhibit 3-1: Municipal Preliminary Screener for Grass Range WWTF

Variable	Estimate	Data Source
Capital costs	$0.63 million	See Section 2
Annual O&M costs (electricity, chemicals, and labor)	$21,300	See Section 2
Interest rate for revenue bonds (for annualizing capital costs)	2.5%	Current interest rate for Montana Water Pollution Control State Revolving Fund (Montana DEQ, 2015)
Time period of financing (for annualizing capital costs)	20 years	
Annual project costs	$61,713	Annualized capital plus annual O&M
Number of households served	79	Mullins (2015)
Existing annual per-household costs	$144	Mullins (2015); all households play a flat rate of $12 per month.
Annual existing costs paid by households	$11,376	Number of households served times existing annual per-household costs
Amount of annual project costs to be paid by households	100%	We assume that households bear all existing costs and will bear all costs of pollution control
Annual per-household pollution control project cost	$781	Annual project costs divided by number of households
Total annual cost of pollution control per household	$925	Household existing costs plus project costs
Median Household Income (2013$)	$24,464	U.S. Census Bureau (2013)
Median Household Income (2014$)	$24,861	Adjusted based on Consumer Price Index (2014=236.74; 2013=232.96)
Municipal Preliminary Screener (MPS)	3.7%	Total annual cost of pollution control divided by median household income
Alternative 1 MPS[1]	3.9%	

[5] If industrial and commercial users bear 55% or more of project costs, then the MPS would be under 2% because total annual costs per household would be $497 or less (including existing costs). When an MPS is less than 2%, impacts may not be substantial, and the Secondary Test would be optional.

Alternative 2 MPS[2]	5.4%

O&M = operations and maintenance
1. Alternative 1 assumes an annual project cost of $65,253 (Exhibit 2-2), which yields annual per-household project costs of $826 ($65,253 divided by the number of households) and total annual household costs of $970 (annual household project costs plus existing annual household costs).
2. Alternative 2 assumes an annual project cost of $95,068 (Exhibit 2-2), which yields annual per-household project costs of $1,203 ($95,068 divided by the number of households) and total annual household costs of $1,347 (annual household project costs plus existing annual household costs).

4 Secondary Test

If the MPS indicates that the economic effects of the pollution control project may be substantial (with a borderline impact being between 1% and 2% and a large impact being over 2%), the next step is to use the Secondary Test to evaluate the community's ability to obtain financing as well as general socioeconomic health. The Secondary Test is designed to build upon the characterization of the financial burden identified in the MPS. Indicators describe pre-compliance debt, socioeconomic, and financial management conditions in the community. For more information on the need for the Secondary Test, see the Appendix and U.S. EPA (1995).

Section 4.1 shows the Secondary Test for Grass Range using U.S. EPA (1995) and Section 4.2 shows Montana's alternative Secondary Test (Montana DEQ, 2014), which eliminates debt and financial management indicators in favor of socioeconomic indicators. For more details on Montana's modified Secondary Test, see Exhibit 4-1 and Section 4.2.

Exhibit 4-1. Comparison of EPA 1995 Guidance and MT DEQ Guidance: Secondary Test of Substantial Impact, Public Entities

EPA Indicator	Interpretation	MT DEQ Indicator
Debt Indicators		
Bond Rating	Indicates the community's credit capacity.	None
Overall Net Debt as a Percent of Full Market Value of Taxable Property	Indicates the debt burden on residents and measures the ability of the community to issue additional debt.	None
Socioeconomic Indicators		
Unemployment Rate	Indicates the general economic health of the community.	Unemployment Rate
Median Household Income	Indicates overall wealth of the community.	Median Household Income Poverty rate[a] LMI percentage rate[b]
Financial Management Indicators		
Property Tax Revenue as a Percent of Full Market Value of Taxable Property	Indicates the funding capacity to support new expenditures, based on the wealth of the community.	(Property Tax + Fees + Revenues)/MHI/Population × 100[c]

Property Tax Collection Rate	Indicates the efficiency of the tax collection system and measures how well the local government is administered.	None
a. Evaluated as follows: strong: < 6%; midrange: 6% to 40%; and weak: >40%. b. Low to medium income (LMI) percentage rate, defined as the percent of population earning 200% of the poverty threshold or below. Evaluated as follows: strong: < 10%; midrange: 10% - 45%; weak: >45%. c. Evaluated as follows: strong: <1.5; midrange: 1.5 – 3.5; weak: >3.5.		

4.1 Secondary Test Based on EPA Guidance

To conduct the Secondary Test for Grass Range using U.S. EPA (1995) Guidance, we used socioeconomic data from the U.S. Census Bureau (2013a; 2013b; 2013c), information about property values from Montana Department of Revenue (2015), and other financial data from Grass Range's 2013 Annual Financial Report (AFR; Town of Grass Range, 2015).

Debt Indicators

Debt indicators include the bond rating, which provides a measure of the creditworthiness of the community, and the overall net debt as a percent of the full market value of taxable property, which is a measure of the debt burden on residents in the community and a measure of the ability of local government jurisdictions to issue additional debt.

We did not find a bond rating for the Town of Grass Range. As noted by U.S. EPA (1995), the absence of a bond rating does not indicate strong or weak financial health. Consistent with U.S. EPA (1995), we excluded this metric from the calculation of the Secondary Score.

The 2013 AFR reports that the Town had no long-term outstanding debt, and it does not show any debt for overlapping entities (such as a school district). The 2015 Certified Taxable Valuation (Montana Department of Revenue, 2015) shows that the 2015 total market value was $5,493,890. Given no outstanding debt, the overall net debt as a percent of full market value of taxable property is 0% and the Town is strong on this metric.

Socioeconomic Indicators

Socioeconomic indicators include community-specific MHI (compared with the state level MHI) and the local unemployment rate (compared with the national rate). As shown in Exhibit 3-1, MHI for Grass Range for the period 2009 to 2013 was $24,464. Data from the U.S. Census Bureau (2013b) indicates that MHI for Montana during the same period was $46,230.[6] Since the Town's MHI is more than 10% below the state MHI, the Town is weak on this indicator.

According to the United States Bureau of Labor Statistics, unemployment in Fergus County was at 3.7% in June 2015, compared with a national unemployment rate of 5.3%. Since the local rate is more than 1% below the national rate, the Town is strong on this indicator.

[6] Income is not updated to current dollar years for the Secondary Test.

Financial Management Indicators

Financial management indicators include the property tax revenues as a percent of full market value of taxable property ("property tax burden") and property tax collection rate. Property tax burden indicates the funding capacity to support new expenditures, based on the wealth of the community, while the property tax collection rate provides an indicator of the efficiency of the tax collection system and a measure of how well the local government is administered.

According to the AFR (Town of Grass Range, 2014), property tax revenues for 2013 were $12,639. As a share of the full market value of taxable property ($5,493,890), property tax revenues are 0.2%. Since this is below 2%, the Town is strong on the property tax burden metric. However, note that debt for wastewater projects may not necessarily be repaid by property taxes (e.g. it is likely repaid by service fees), and this metric may not fully reflect the community's ability to support new expenditures.

The AFR provides information for the property tax collection rate for the fiscal year 2014. U.S. EPA (1995) defines the property tax collection rate as the ratio of the actual amount collected from property taxes to the amount levied. However, the amount levied for the Town of Grass Range is not available in the AFR; as such, we used the ratio of the actual amount collected to the final amount budgeted.[7] For fiscal year 2013, the final amount budgeted was $9,960, while the actual amount collected was $12,639, for a collection rate of over 100%. As such, the Town is strong on this indicator.

Secondary Test Data and Results

Exhibit 4-2 shows available data for the Secondary Test and Exhibit 4-3 provides the Secondary Score.

Exhibit 4-2: Secondary Test Data Based on EPA Guidance

Variable	Value	Data Source
Population	164	U.S. Census Bureau (2013a)
Median Household Income (2013$)	$24,464	see Exhibit 3-1
State Median Household Income	$46,230	U.S. Census Bureau (2013b)
Community unemployment rate	3.7%	June 2015 unemployment rate for Fergus County from Bureau of Labor Statistics
National unemployment rate	5.3%	June 2015 unemployment rate for United States from Bureau of Labor Statistics
Market value of taxable property	$5,493,890	2015 Total Market Value from the Montana Department of Revenue (2015)
Property tax collection rate	127%	Actual property tax collection ($12,639) divided by final budgeted amount ($9,960) from Town of Grass Range (2014)[1]
Direct net debt	$0	Town of Grass Range (2014)
Overlapping debt	$0	None listed in Town of Grass Range (2014); no bond issues found for overlapping districts

[7] City of Grass Range (2014) provides both the original budgeted amount and the final budgeted amount.

Property tax revenues	$12,639	Actual property tax collection from Town of Grass Range (2014)

1. The 1995 Guidance defines the property tax collection rate as the ratio of the actual amount collected from property taxes to the amount levied. However, the amount levied for the Town of Grass Range is not available; as such, we used the ratio of the actual amount collected to the final amount budgeted.

Exhibit 4-3: Secondary Score Based on EPA Guidance

Indicator	Result	Score
Bond Rating	Not Available	n/a
Overall Net Debt as Percent of Full Market Value of Taxable Property	0%	3
Unemployment	3.7% [compared to 5.3% nationally]	3
Median Household Income[1]	$24,464 [compared to $46,230 statewide]	1
Property Tax Revenues as a Percent of Full Market Value of Taxable Property	0.2%	3
Property Tax Collection Rate	126%	3
Average of Financial Management Indicators[2]	(3 + 3) ÷ 2	3
Secondary Score[3]		***2.5***

Source: See Exhibit 4-2.
1. Not updated for the Secondary Test.
2. If one of the debt or socioeconomic indicators is not available (in this case, the bond rating), the two financial management indicators (property tax revenues as a percent of full market value of taxable property and property tax collection rate) are averaged and this averaged value is used as a single indicator with the remaining indicators.
3. Average of scores for the following indicators: Overall net debt as a percent of full market value of taxable property, unemployment, median household income, and average of financial management indicators.

4.2 Secondary Test Based on Montana Alternative

In comparison with EPA's 1995 Guidance Secondary Test, the Montana DEQ (see Montana DEQ, 2014) has modified the Secondary Test such that much of the financial and debt information is not considered (eliminating both debt indicators in favor of socioeconomic indicators, and eliminating or altering both financial management indicators), but more information on household income is provided.[8] Exhibit 4-4 shows the metrics and interpretation using Montana's alternative approach. This section calculates the Secondary Score based on Montana's alternative approach.

Exhibit 4-4. Secondary Test Based on Montana DEQ Guidance

Indicator	Weak (Score of 1)	Mid-Range (Score of 2)	Strong (Score of 3)

[8] This approach assumes that "the ability of a community to finance a project may be dependent upon existing household financial conditions within that community" (Montana DEQ, 2014).

Poverty Rate	More than 40%	6 to 40%	Less than 6%
Low to Medium Income Percentage (LMI)	More than 45%	10 to 45%	Less than 10%
Unemployment	More than 1% above state average	State average	More than 1% below state average
Median Household Income	More than 10% below state median	State median	More than 10% above State median
Property Tax, fees and revenues[1] divided by MHI and indexed by population	More than 3.5	1.5 to 3.0	Less than 1.5

1. The "property tax, fees, and revenues" metric includes the following items from the Statement of Activities: charges for services, fees, and forfeitures for governmental activities; charges for services, fines, and forfeitures for business-type activities; and property taxes for governmental activities.

For the unemployment rate and MHI, we used the same data sources as cited in Exhibit 4-2. Because the local unemployment rate is within 1% of the state unemployment rate,[9] the Town is mid-range on this indicator. As with the results using EPA's Guidance, the Town is weak on the MHI indicator since the local MHI is more than 10% below the state-level MHI. For the poverty rate, data from U.S. Census Bureau (2013b) indicates that the 10.8% of all families in Grass Range are below the poverty threshold, which is in the mid-range according to Montana's Guidance. Based on data from U.S. Census Bureau (2013c), the Town is weak on the "Low to Medium Income Percentage" (LMI) indicator, with 71.3% of families earning less than 200% of the poverty threshold.

Montana's final Secondary Test indicator is the "Revenues, Taxes, and Fees Burden Index," which is calculated as:

This metric is intended to reflect the government revenue burdens of the local population, and includes the following three revenue streams from the Statement of Activities in the 2013 AFR (Town of Grass Range, 2014): charges for services, fines, and forfeitures for governmental activities ($3,426); charges for services, fines, and forfeitures for business-type activities ($48,292); and property tax revenues for governmental activities ($12,639). These revenues sum to $64,357. Dividing by MHI ($24,464 in 2013$; see Exhibit 3-1) and indexing by population (164 based on U.S. Census Bureau, 2013a) yields a metric value of 1.6, which is mid-range.

[9] Note that Montana's alternate Secondary Test compares the local unemployment rate to the state, whereas EPA's Guidance compares it to the national rate.

Exhibit 4-5 shows the Secondary Test using Montana DEQ Guidance. The Town has a Secondary Test score of 1.6 using this alternative approach (compared with 2.5 using EPA's Guidance).

Exhibit 4-5: Secondary Score Metrics Based on Montana DEQ Guidance

Indicator	Result	Score	Data Source
Poverty Rate	10.8%	2	U.S. Census Bureau (2013b)
Low to Medium Income Percentage (LMI)	71.3%	1	U.S. Census Bureau (2013c)
Unemployment	3.70% [compared with 3.90% for the state]	2	June 2015 unemployment rate for Fergus County and Montana from Bureau of Labor Statistics
Median Household Income	$24,464 [compared with $46,230 for the state]	1	U.S. Census Bureau (2013b)
Property Tax, fees and revenues[1] divided by MHI and indexed by population	1.6	2	Tax, fee, and revenue data from Town of Grass Range (2014)
Secondary Score[2]		***1.6***	

1. The "property tax, fees, and revenues" metric includes the following items from the Statement of Activities: charges for services, fees, and forfeitures for governmental activities; charges for services, fines, and forfeitures for business-type activities; and property taxes for governmental activities.
2. Average of scores for the five indicators.

5 Substantial Impact Analysis

Given an MPS of 3.7% (with a range of 3.9% to 5.4% using alternative scenarios; see Section 3), and a Secondary Score of 2.5 or 1.6 (using EPA's 1995 Guidance or Montana's modified Guidance, respectively; see Section 4), the Substantial Impacts Matrix (Exhibit 5-1) indicates that impacts from the project are likely to be substantial. Further analysis would be needed to determine whether impacts would also be widespread.

Exhibit 5-1. Substantial Impacts Matrix

Secondary Score	Municipal Preliminary Screener		
	Less than 1%	1% to 2%	Greater than 2%
Less than 1.5	?	X	X
1.5 to 2.5	✓	?	X
Greater than 2.5	✓	✓	?

Source: U.S. EPA (1995)
X = impact is likely to be substantial
? = impact is borderline
✓ = impact is not likely to be substantial

6 References

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7 Appendix: Description of the Economic Guidance for Water Quality Standards

In order to demonstrate that there would be substantial and widespread economic and social impacts justifying a variance, the discharger must demonstrate that it would face substantial financial impacts, and that the affected community would have significant adverse impacts as a result (i.e., widespread impacts). EPA's 1995 Guidance (U.S. EPA, 1995) outlines the specific steps that the discharger must follow to make these demonstrations. This appendix provides a brief overview of the Guidance as applicable to an entity in the public sector. For a more detailed description of the analysis, see U.S. EPA (1995).

First, to determine whether the pollution control project would entail a substantial impact to an entity in the public sector, there is a two part test. The first part of the test, called the Municipal Preliminary Screener (MPS), is a screening-level ratio designed to trigger additional tests or screen out the possibility of substantial impacts. Since municipalities will pass costs on to households and businesses, this screening is based on how household pollution control costs compare to household income. Generally, if the MPS is less than 1% (i.e., annual household pollution control costs would be less than 1% of median household income), there will not be a substantial economic impact. If the MPS is higher than 1%, then the impacts may be substantial and the discharger proceeds to the second part of the test.

The second part of the test involves calculating multiple indicators (e.g., bond rating, debt ratio, and tax collection ratio) designed to characterize the financial health and socioeconomic status of the community that will bear the costs of the pollution control. This is the Secondary Test. **Exhibit 7-1** shows the indicators used in the Secondary Test and the scores associated with them.[10] The overall Secondary Score is the average of the indicators used.

Exhibit 7-1. Secondary Test Indicators in EPA's Guidance

Indicator	Secondary Indicator Scores		
	Weak (Score of 1)	**Mid-Range (Score of 2)**	**Strong (Score of 3)**
Bond Rating	Below BBB (S&P) Below Baa (Moody's)	BBB (S&P) Baa (Moody's)	Above BBB (S&P) Above Baa (Moody's)
Overall Net Debt as Percent of Full Market Value of Taxable Property	Above 5%	2% - 5%	Below 2%
Overall Net Debt Per Capita	Greater than $3,000	$1,000 - $3,000	Less than $1,000
Unemployment	More than 1% above national average	National average	More than 1% below national average
Median Household Income	More than 10% below state median	State median	More than 10% above state median

[10] In some cases, if data for a particular indicator is not available, the Guidance directs users to alternative indicators. See U.S. EPA (1995) for more details.

Property Tax Revenues as a Percent of Full Market Value of Taxable Property	Above 4%	2% - 4%	Below 2%
Property Tax Collection Rate	< 94%	94% - 98%	> 98%

The MPS and Secondary Test results are evaluated jointly, using the Substantial Impacts Matrix, as shown in **Exhibit 7-2**.

Exhibit 7-2. Substantial Impacts Matrix

Secondary Score	Municipal Preliminary Screener		
	Less than 1%	**1% to 2%**	**Greater than 2%**
Less than 1.5	?	X	X
1.5 to 2.5	✓	?	X
Greater than 2.5	✓	✓	?

Source: U.S. EPA (1995)
X = impact is likely to be substantial
? = impact is borderline
✓ = impact is not likely to be substantial

If the evaluation indicates that the pollution control project will place substantial economic burdens on the discharger, the next step is to determine whether the impacts will also be widespread in the surrounding community. This step involves estimating socioeconomic changes due to pollution control costs, such as loss of employment, changes in property values, and higher taxes. In this step, the analysis should consider the direct and indirect effects of control costs. Also, expenditures on pollution control costs are not likely to vanish from the community. These expenditures become business revenues and household incomes that can offset adverse financial impacts experienced by the affected entities.